School of Information and Physical Sciences

INFO6030: Systems Analysis and Design
Callaghan, Singapore NAIHE, Online and Sydney Elizabeth Street
Trimester 2 - 2024

OVERVIEW

Course Description
The course covers the development of information systems and of their software components. Whilst the course introduces students to the whole systems development process, it focuses on the elicitation and initial modelling of information systems requirements that enable identification of information problems and the subsequent analysis and modelling of an efficient solution to those problems.The approach follows the object-oriented (OO) methods expressed by the Unified Process software development life-cycle. The course addresses the complete methodology of the Unified Process, including its methodological deliverables and models and tools, with exposure to manual and automated diagramming and modelling techniques. It critically examines the issues and professional responsibilities that need to be considered at different phases in the development of information systems for an organization; including the impact of the systems on intended users and maintenance of quality.Students gain experience in requirements elicitation and modelling and systems analysis and feasibility estimation within a system development project setting aimed at developing an event-driven information system. They also gain practical experience in the use of a CASE tool to produce object and class definitions and to create models.

Academic Progress Requirements
Nil

Assumed Knowledge
Desktop computer competency as prescribed by the International Computer Driving Licence. (See Australian Computer Society at http://www.acs.org.au/icdl/). INFO6001 and/or SENG6110 or equivalent.

Contact Hours
Callaghan
Computer Lab
Face to Face On Campus
2 hour(s) per week(s) for 12 week(s) starting Week 1

Lecture
Face to Face On Campus
2 hour(s) per week(s) for 12 week(s) starting Week 1

Singapore NAIHE
Computer Lab
Face to Face On Campus
2 hour(s) per week(s) for 12 week(s) starting Week 1

Lecture
Face to Face On Campus
2 hour(s) per week(s) for 12 week(s) starting Week 1

Online
Computer Lab
Online
2 hour(s) per week(s) for 12 week(s) starting Week 1

Lecture
Online
2 hour(s) per week(s) for 12 week(s) starting Week 1

Sydney Elizabeth Street
Computer Lab
Face to Face On Campus
2 hour(s) per week(s) for 12 week(s) starting Week 1

Lecture
Face to Face On Campus
2 hour(s) per week(s) for 12 week(s) starting Week 1

Unit Weighting	10
Workload	Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

CONTACTS

Course Coordinator   **Callaghan and Online**
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Consultation: Please Email for Consultation
Email Subject header: INFO6030 / Location (Online or Callaghan) / Reason for email

Sydney Elizabeth Street
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Teaching Staff   Other teaching staff will be advised on the course Canvas site.

School Office   **School of Information and Physical Sciences**
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SYLLABUS

Course Content	1. Contemporary systems development methodologies. 2. Professional responsibilities in terms of quality assurance and reporting and how they need to be considered in all phases of software development. 3. Requirements elicitation, analysis and development of information systems and associated software using Unified Modelling Language (uml) models. 4. Information system feasibility evaluation. 5. Design and development issues. 6. The interaction between, and the effects of the system with, its users.

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. A firm basis for understanding the life cycle of a systems development project;

2. An understanding of the analysis and development techniques required as a team member of a medium-scale information systems development project;

3. An understanding of the ways in which an analyst's interaction with system sponsors and users play a part in information systems development;

4. Experience in developing information systems models;

5. Experience in developing systems project documentation;

6. An understanding of the object-oriented methods models as covered by the Unified Modelling Language.

Course Materials

Lecture Materials:
- PowerPoint lecture notes will be made available prior to the lecture each week on Canvas.

Recommended Reading:
- Larson, E. (2021). Project Management: The Managerial Process, 8th edition. McGraw-Hill US Higher Ed ISE, NY.
  Alan Dennis, Barbara Wixom, Roberta M. Roth. (2021). Systems Analysis and Design, 8th Edition Wiley

Recommended Text:
- Satzinger, Jackson and Burd. (2016) Systems Analysis and Design in a Changing World, Cengage Learning.

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Contact Hour Requirements:
-

Course Assessment Requirements:
- Assessment 3 - Final Examination: Pass requirement 40% - Must obtain 40% in this assessment item to pass the course.

Compulsory Placement and WHS Requirements:
-

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	13 May	Introduction This is an indicative course schedule	Lab: Review Questions Team formation	This is an indicative course schedule
2	20 May	Unified Process (UP) and Models	Review Questions Case Study Team formation	
3	27 May	UP Information Gathering and Modelling	Review Questions Case Study	
4	3 Jun	Modelling Use Cases and Class Diagrams	Review Questions Case Study	
5	10 Jun	Feasibility	Review Questions	Quiz (in lab)
6	17 Jun	State Diagrams	Review Questions	Assessment 1: Friday 11.59pm
7	24 Jun	Design Class Diagrams	Presentation Cast Study	
8	1 Jul	Design Sequence Diagrams	Review Questions Case Study	
9	8 Jul	Human Computer Interaction	Review Questions	Quiz (in lab)
10	15 Jul	Testing and Controls	Review Questions Case Study	
11	22 Jul	Implementation and Deployment	Review Questions	Assessment 2: Friday11.59pm
12	29 Jul	Revision	Presentation	
Exams				

ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Assignment 1	Week 6 Friday 11.59pm	Group	20%	2, 3, 4, 5
2	Quiz - Class	Week 5 Lab Week 9 Lab	Individual	10%	1, 6
3	Final Examination*	Formal Examination Period	Individual	40%	1, 4, 6
4	Assignment 2	Week 11 Friday 11.59pm	Group	30%	2, 3, 4, 5

* This assessment has a compulsory requirement.

Late Submissions   The mark for an assessment item submitted after the designated time on the due date,

without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Assignment 1

Assessment Type	Written Assignment
Purpose	The team project stimulates real world application development and will give student's some experiences of large system development. The project will also enhance students communication skills and ability to work in a team. Team management processes will be assisted by using templates provided and team peer reviews.
Description	The project has two milestones. The first milestone of the project focuses on the requirement modelling of a software system along with some system analysis and rudimentary design. Findings will be presented using appropriate UML diagrams and descriptions in a report format and include items such as bushiness rules, team meeting and management documentation.
Weighting	20%
Due Date	Week 6 Friday 11.59pm
Submission Method	Online Via Canvas
Assessment Criteria	See Canvas
Return Method	Not Returned
Feedback Provided	Online - Once all assessments have been marked.
Opportunity to Reattempt	Students WILL NOT be given the opportunity to reattempt this assessment.

Assessment 2 - Quiz - Class

Assessment Type	Quiz
Description	Two quizzes worth 5% each
Weighting	10%
Due Date	Week 5 Lab Week 9 Lab
Submission Method	Online Via Canvas
Assessment Criteria	Correctness of answer
Return Method	Not Returned
Feedback Provided	Online - Once all assessments have been marked.
Opportunity to Reattempt	Students WILL NOT be given the opportunity to reattempt this assessment.

Assessment 3 - Final Examination

Assessment Type	Formal Examination
Purpose	The final formal examination is designed to test the individual student's knowledge of the course material and their ability to describe, analyse problems given in the formal exam.
Description	Formal Examination
Weighting	40%
Compulsory Requirements	Pass requirement 40% - Must obtain 40% in this assessment item to pass the course..
Due Date	Formal Examination Period
Submission Method	Online Via Canvas
Assessment Criteria	Correctness of answers
Return Method	Not Returned
Feedback Provided	No Feedback - .
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment.

Assessment 4 - Assignment 2

Assessment Type	Written Assignment
Purpose	The team project stimulates real world application development and will give student's some

	experiences of large system development. The project will also improve students communication skills and ability to work in a team. Team management processes will be assisted by using templates provided and team peer reviews
Description	In the second milestone, student teams will finalise the design of the software system and findings will be presented using appropriate UML diagrams and descriptions in a report format. This milestone will include items such as interface prototypes, testing protocols, deployment plan, team meetings and management documentation.
Weighting	30%
Due Date	Week 11 Friday 11.59pm
Submission Method	Online Via Canvas
Assessment Criteria	On Canvas
Return Method	Not Returned
Feedback Provided	Online - Once all assessments have been marked.
Opportunity to Reattempt	Students WILL NOT be given the opportunity to reattempt this assessment.

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Attendance

Attendance/participation will be recorded in the following components:
- Computer Lab (Method of recording: During lab classes)
- Lecture (Method of recording: During lecture classes)

Communication Methods

Communication methods used in this course include:
- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face to face meetings or supervision.

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential

improvement.
As a result of student feedback, the following changes have been made to this offering of the course:
- Sample examples of system models

Oral Interviews (Vivas)	As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.

Academic Misconduct	All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35.

Adverse Circumstances	The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where: 1. the assessment item is a major assessment item; or 2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system; 3. you are requesting a change of placement; or 4. the course has a compulsory attendance requirement. Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at: https://policies.newcastle.edu.au/document/view-current.php?id=236

Important Policy Information	The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures that support a safe and respectful environment at the University.

Graduate Profile Statements – Information Technology (PG)

The following table illustrates how this course contributes towards building the skills students will need to work in their profession.

Level of capability

- Level 1 indicates an introduction to a topic at a university level
- Levels 2 and 3 indicate progressive reinforcement of that topic
- Level 4 indicates skills commensurate with a graduate – entry to professional practice
- Level 5 indicates highly specialist or professional ability

Graduate attribute	University of Newcastle Master of IT Graduate Profile Statements	Taught	Practised	Assessed	Level of capability
1	Identify and analyse complex problems within information technology and design solutions to these problems at a highly skilled level	X	X	x	4
2	Depth of technical information in at least one facet of information technology sufficient for a career in information technology together with the capacity to continue developing relevant knowledge, skills and expertise throughout their careers	X	X	X	4
3	Manage projects in aspects of information technology relevant to their field of study, including the ability to develop, manage and participate at all levels in team environments	X	X	X	3
4	Professionalism and ethics in the context of the global information technology industry	X	X		3
5	Communicate effectively through a range of verbal, written and/or presentation skills at an advanced level	X	X	X	4
6	Apply knowledge and skills to plan and execute a substantial capstone experience or a research-based project and/or piece of scholarship				